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A Standards Management Program in a Corporate Library

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In a manufacturing environment, current standards are key to shipping product. Many customers conduct company audits, and will refuse to accept a part if an out of date standard was used during design, testing, production, or labeling. While we most often think of this as a QS 9000 requirement, many individual companies conduct similar audits of their suppliers' operations.

Obtaining the most current standard has been a problem at the Torrington Company for at least 30 years. Until standards conglomerators came on the scene, it was necessary to contact each individual standards producing association to see if the standard in hand was the most current one. While some associations would notify you of updates, others would not. Employees at each manufacturing location were often in contact with the standards producer, since there was no way of being certain who else in the company was tracking a particular standard or association.

With the arrival of standards conglomerators the place to purchase standards was simplified, but the issue of currency was not resolved in many minds. Many of our top level employees are on standards writing committees, and have early knowledge that an updated standard had been released. Employees were not comfortable relying on update services provided by these conglomerators. In many cases, there was a lack of awareness of these services. In a manufacturing environment, ordering publications is not a regular part of the average employee's job function. Many employees do not understand Torrington Company requirements, how to select the appropriate vendor, or what the vendor needs to place an order. Standards are often needed as soon as possible, so delays take valuable time away from the manufacturing problem at hand.

Corporate culture at the Torrington Company embraces Total Quality Management, and this initiative launched three teams to determine how best to address these problems. The first team clearly defined the scope and details of the problems associated with obtaining standards. The second team was initiated to create a solution to this problem and a process for implementing the solution. The third team was created to implement this solution.

The manager of the Torrington Company's Corporate Library was a consultant with the second team's work. The question asked was "What, if anything, can the library do to help us address this problem?" The team had been preparing to assign specific engineers to keep in contact with each of the standards producing agencies whose documents we refer to. Unaware of this plan, the Library Manager proposed a solution using standard library procedures. The team dropped plans for the proposed solution, and embraced the library proposal as the best solution to this problem.

The Solution

The library was assigned the task of ordering and distributing the needed standards, updating the standards as new revisions are released, and providing a way for employees throughout the company to see who is on the distribution list for a particular title.

Implementation

The implementation team consisted of one senior engineer from each division of the company. The first problem the implementation team faced was determining which standards were required on a continually updated basis, and who within the company was required to have them. The Torrington Company has its main campus in Torrington, CT, with plant and sales locations around the world, so geography was an obstacle. Within each physical location, an employee had already been assigned oversight of the standards shared within that building. Most often, these employees were responsible for some aspect of quality control at this location. They became the contact people to whom the library would ship regularly updated standards.

Perhaps the most difficult part of the implementation process was compiling the list of standards to be

tracked and who was to receive them. There was no uniform way that standards were purchased throughout the company, and no uniform budget. Since the senior engineers on the implementation team worked closely with each plant in their division, they were the most effective people to create this list.

Though the various divisions manufacture very different parts for very different customers, it was necessary to edit the list so that a particular standard appeared only once, with all employees who were required to have a copy listed in one place. While this sounds obvious, it was not. We began with the assumption that because the products and customers are so different, there would be no overlap in the standards required. We were wrong.

We had encouraged employees to let us know what edition was already owned so that we would only order the updated copies that we needed, rather than purchasing an updated copy for everyone on the distribution list. Some employees took the time to determine what the latest revision of these standards was, as well. It soon became evident that it was so time consuming and cumbersome to get this information uniformly reported and compiled that it was more cost efficient to order an updated copy for everyone on the list. Thus, we were assured that all employees who are required to have copies of this document had the most current one.

Once we knew which standards and the number of copies we needed, we were ready to negotiate with vendors. We soon discovered that licensing electronic products is much more time consuming than managing physical volumes. With print, copyright compliance is clear. Electronic licensing is more complex with access and storage rights issues. We learned that those who provide electronic standards want us to subscribe to their entire standards collection, want to license us so that every employee who connects to the company intranet was included as a user, state that storage of the electronic document was only permitted on an employee's computer for 30 days without violating the contract, and that this downloaded copy was explicitly for use by one employee only. Cost was either based on the number of employees who connect to our intranet, or by a pay-per-view option. Currently, there does not exist a library model for electronic document licensing that is similar to a book purchase. If you purchase the printed document you may keep it as long as you want to, and share the copy with as many people as you choose to, as long as you do not photocopy it. Standards database producers fear that their revenue will decrease using this model, but others believe it will increase. They will get customers who find current licensing and pricing unreasonable and unacceptable, but do not have the time it takes to negotiate workable licenses. The last time I reviewed economic theory, more customers usually means more revenue. Companies providing electronic standards need to be assured that a different licensing model will result in more customers, or they have no reason to consider a different pricing structure.

Given this situation, Torrington decided to start the standards program by providing paper copies of the required documents. Electronic copies will be delivered as licensing problems are solved. Unfortunately, that probably won't happen soon. The initial list of required standards was sent to three standards conglomerators for pricing. The information included document pricing, discounts available, and availability of particular standards families. Some standards are handled exclusively through one vendor. Some standard producing agencies are considered to be too small with demand too low to be handled by some of the conglomerators. Shipping costs, which can vary widely, was not included in the pricing we received.

ILI Infodisk was selected as our primary standards conglomerator. Our parent company had already negotiated a substantial discount with them that included access to their standards database. They were probably the first to provide electronic notification of standards updates. After two years of working with ILI and their major competitor, we have found that ILI fills orders more quickly and reliably than their competition, without the backorder and invoicing problems experienced from other companies. Also, their shipping charges are much less. In one test case, the competition charged twice as much for shipping the same document. While other standards producers continue to contact us to sell their products, the Torrington Company simplified standards purchasing and updating by using one vendor for all standards not provided exclusively by one source.

Once we selected our vendor we sent ILI our finalized list. They shipped us the most recent editions of the documents listed. Where a document had been

superseded by another document, they sent the current standard. Where a standard had been cancelled, they did not ship anything unless we specifically requested the out of date document. Three thousand documents were arriving. How was the library about to handle this?

Automation

The Torrington Company's Information Center uses Basis/Techlib as its library automation software. Basis/Techlib is built on BASIS - a relational database optimized to manage hybrid information sets that include structured and unstructured (i.e. text) content. It handles images and many languages. BASIS was developed at Battelle Memorial Institue in the late 1970's to support research documentation. Unlike later companies like Oracle, Battelle did not market or sell what they had created. People contracting for Battelle research were so impressed with this software that they asked to purchase it. Battelle programmers worked with Battelle librarians to develop the Techlib application of the BASIS software that works for the library. Eventually, this software was spun off as its own company, Information Dimensions. After a number of years as an independent company, IDI was bought and sold several times, and is currently owned by OpenText. More information on this system can be found in the article 'It's All in How You Look at It' in the May 2001 *Sci Tech News*.

Current awareness

ILI's standards database has a bookmarking feature that is used to request notification of a new revision. When a standard is flagged with a bookmark, an electronic monthly report notes updates. Previously, Global Engineering Documents sent paper notification of updates at the time our project began, and later provided the ability to go into their database and search for the most recent revision. As this article is being written, Global may be offering a push service, but since they are not the primary vendor we used, we have not kept up with what they offer. At this time, ILI does not automatically remove a document from your bookmarked list when it has been cancelled or superseded by another number, a feature we would find very helpful. To keep bookmarks current, you must manually go in and delete or change this flag yourself.

ILI forwards the information from the standards producer when notifying of a standards update. This can be problematic since notices can represent reprints, as well as revisions.

Torrington is unable to place standing orders for particular titles due to the number of copies that are needed and the frequent changes in distribution lists.

Tracking

One of our requirements is monitoring when an order is placed and when it is received. Our in-house standards teams requires our employees all over the company to have desktop access to information concerning which standards are owned and their location. Tracking, claiming, and routing are important functions. We therefore decided to use the Basis/Techlib serials and cataloging modules to track our documents. While ILI provides a notepad feature that allows employees who order standards to put their name on a list which is viewable by others in the company, our employees do not voluntarily or reliably add themselves to such lists, so a study in employee behavior told us that this concept fails in our company before it starts.

Since Torrington has experienced difficulty in obtaining out of date standards, we decided to keep out of date standards as part of the library collection. They are shelved where they cannot be confused with the collection of current standards and clearly marked "Superseded" or "Cancelled". Each item has an archive label on it to further reduce the chance of mixing it up with a current edition of the same title. Not all standards handled by the library are automatically updated, though all are reviewed when notification of update is released. Current standards that are automatically updated have been labeled "Controlled– Automatically Updated". Current standards that are not automatically updated have been labeled "Uncontrolled – Not Automatically Updated". Each document is labeled as to whether or not it may be photocopied. Though this is noted on the documents that ILI sends for the public at large, some publishers have granted us permission to copy the document internally, so our copyright permissions may be different than ILIs. This is especially true of customer standards.

BASIS/Techlib requires a 'material type' field in its

catalog and copy records. Common material types are "Books", "Audio tapes" "Video tapes", etc. We created separate material types for controlled, uncontrolled, and archived standards, allowing employees and library staff to search by restricting the results to standards, and further limiting according to the update policy. From the OPAC, employees also have the option of searching all standards material types, or specific ones. Most employee searches are done on all standards types at once. Frequently, an employee doesn't care about the update policy; they need to know if what they seek is owned, and where to get it. BASIS/Techlib's dataload facility requires you to select a default for material type when setting up instructions for a data load. We selected 'Controlled Standards' as our default material type. We selected the standard number as our call number, and also mapped this to the ISSN field. The 'Document Type' field indicates the type of catalog record you are working with, such as a monograph or a serial record. The serials module restricts all records viewable in that module to serials document types only. Therefore it became our 'Document Type' default value when loading records.

With the catalog records imported from ILI's database and the titles bookmarked for update, records can be edited and enhanced. The Torrington Company writes company standards based on externally written standards to assure uniform materials usage and processes at each manufacturing location. When the initial implementation list was created, Torrington written standards associated with each society written standard were included on the list. It was decided that the company written standards would be listed in the library catalog in the 'General Notes' field. That allowed an employee looking at the catalog record to see which company written standards are influenced by that particular title. Employees who request a new title, and those who are responsible for writing Torrington Company standards are required to provide this information to the library so that we may include it in the library catalog. It is made clear that the library is not responsible for the currency of this information.

We were now ready to use BASIS/Techlib's serials functionality for prediction, claims, and routing. We soon discovered that a search in the serials module retrieves both periodicals and standards. When you work in the bearings industry, every other title includes the word "bearings", "metals", or "materials". Bob Coxe of OpenText wrote programming that allows us to restrict searches in the serials module by material type, so that we may limit our searches to our magazine titles, to our standards titles, or to search both at the same time.

When the time needed to implement the standards project was estimated, we used the amount of time needed to catalog an item multiplied by the number of titles on the original implementation list. This formula overlooked the fact that subscription records, prediction records, and routing records must be made for each title. It was necessary to create five records for each title, instead of the two records that were planned for. This tripled the amount of time needed to fully implement each title.

Subscription records are necessary for the BASIS/Techlib claims reports so there is an address for the claim. One required field in the subscription record is the frequency of the serial publication. There is no selection for irregular titles but, hopefully, OpenText will add this selection as part of its next release of BASIS/Techlib.

BASIS/Techlib's serials module was written assuming that the library would be using the acquisitions module. This module is not necessary for a small library with only one person purchasing documents. When programmers made the assumption that the acquisitions module would be used, a link from the subscription record to the receiving record was not made, nor was the ability to delete a subscription record using the serials module provided. It is necessary to redo the search you just did in the subscription section of the serials module in the receiving section of the serials module when receiving the document, and to go into command mode to delete a subscription record. These problems may be corrected in later releases of BASIS/Techlib.

The serials module has proven to be an effective tool in managing this collection. In most cases, we took advantage of the link from the receiving screen directly to the route record screen to create our routing records. Creating routing records is time consuming. Routing records require the patron ID number to connect the patron record to the catalog record. This relationship allows routing records to be printed that list both the person on the routing list and the

title of the document being routed. When we implemented Techlib 10 years ago, a numeric patron ID was required. At some point this was changed to allow alpha-numeric patron types, though we did not realize this until after all of our routing records had been created. With numeric patron IDs, we had to search for each employee's name to put them on each routing list. Now we use the employee's last name as the patron ID. This has greatly reduced the time it takes to create routing records.

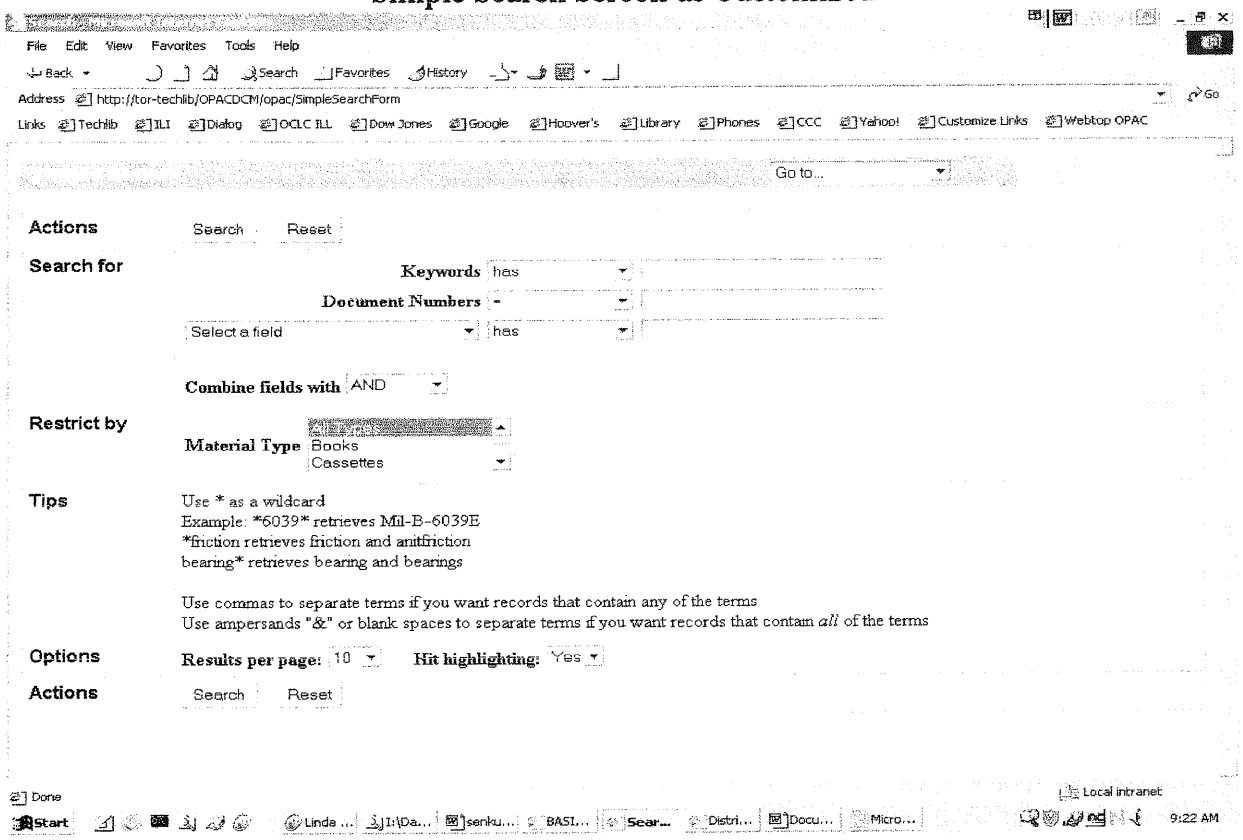
It soon became evident that groups of standards were being routed to the same list of employees. Creation of routing records for different titles that duplicate routing lists seemed like a likely place where programming might be able to automate this task. OpenText wrote a program for us that takes a routing list associated with one record, duplicates it, and attaches it to another record.

A very specific routing letter is required to accompany routed standards. A particular routing record type allows us to associate the appropriate routing letter with standards being distributed. This is a normal feature of Basis/Techlib. The text of the routing record must be written for each routing type as part of the software set up. When a routing report is run, all items routed are printed with the same keystroke, whether magazines or standards, and regardless of the routing record associated with each title. This consolidates work flow and therefore speeds items to employees.

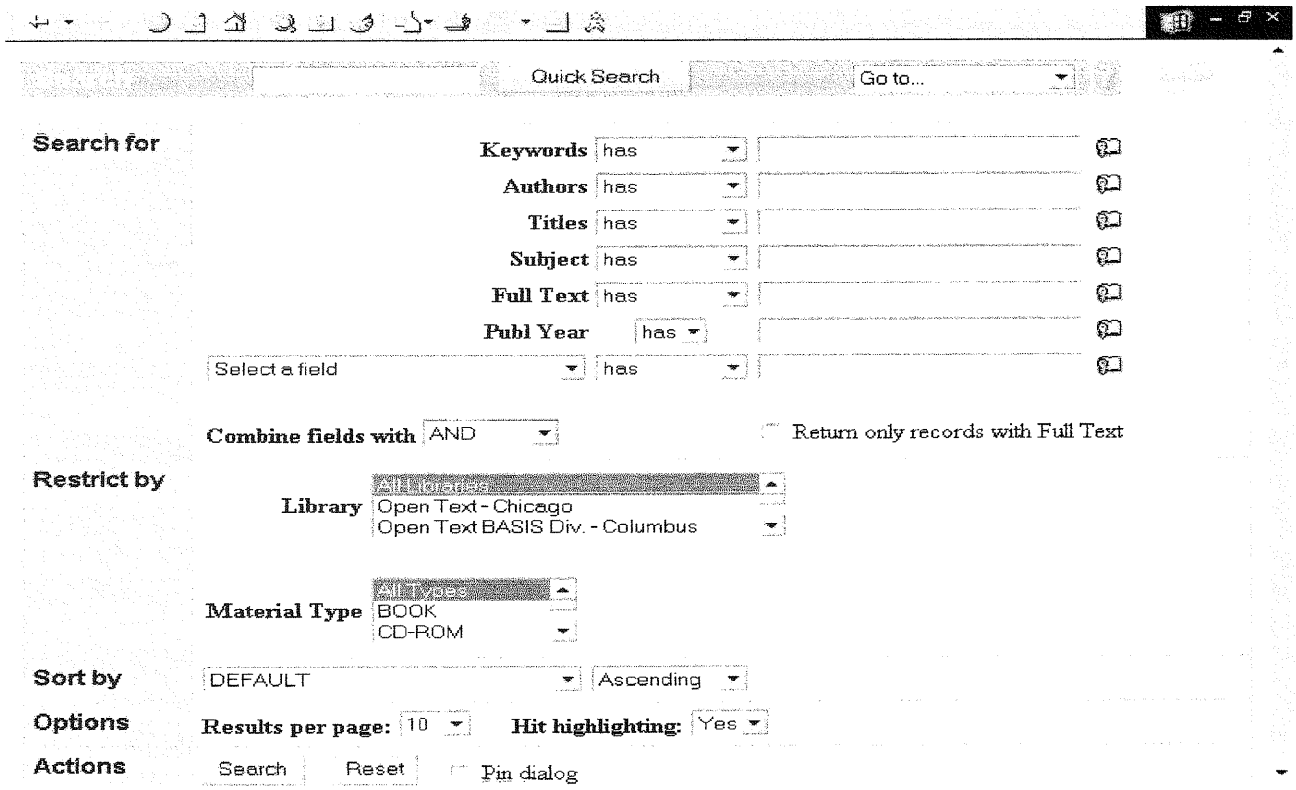
View from the OPAC

The Standards Implementation team worked closely with the Manager, Library Services to add fields and text to the primary OPAC search screen to facilitate searching standards. The initial search screen as delivered by OpenText consists of a field to search keywords and material type only. It was felt that an additional field allowing employees to search standard number from the first search screen was necessary. Employees on this team thought it was unlikely their colleagues would go to the "advanced" search screen, which allows the searcher to specify a field. This change was made, and examples of how to search the numbers field were given as part of the on-screen OPAC instruction. Searching standard numbers is particularly problematic, since dashes, spaces, and years are used in standards numbers without any consistency.

Simple Search Screen as Customized



Simple Search Screen as Delivered by OpenText



An important feature required by the Standards Implementation Team is the ability of employees throughout the company to view who within the company and at what location has a particular standard. Someone in the same plant may have a copy of what is needed, but in the past there had been no way of determining this.

It was decided to make the routing list for "Controlled Standards" available through the OPAC. When the catalog record is called up for a particular standard, a distribution list link appears on the OPAC's full display screen. This list allows the employee to view who within the company is receiving automatically updated copies of this title. Since the employees on the viewable list are publicly tasked with being a contact for standards in that location, this is not confidential information. The viewable list is restricted to controlled standards only, assuring privacy for any other routing that may be going to a particular employee.

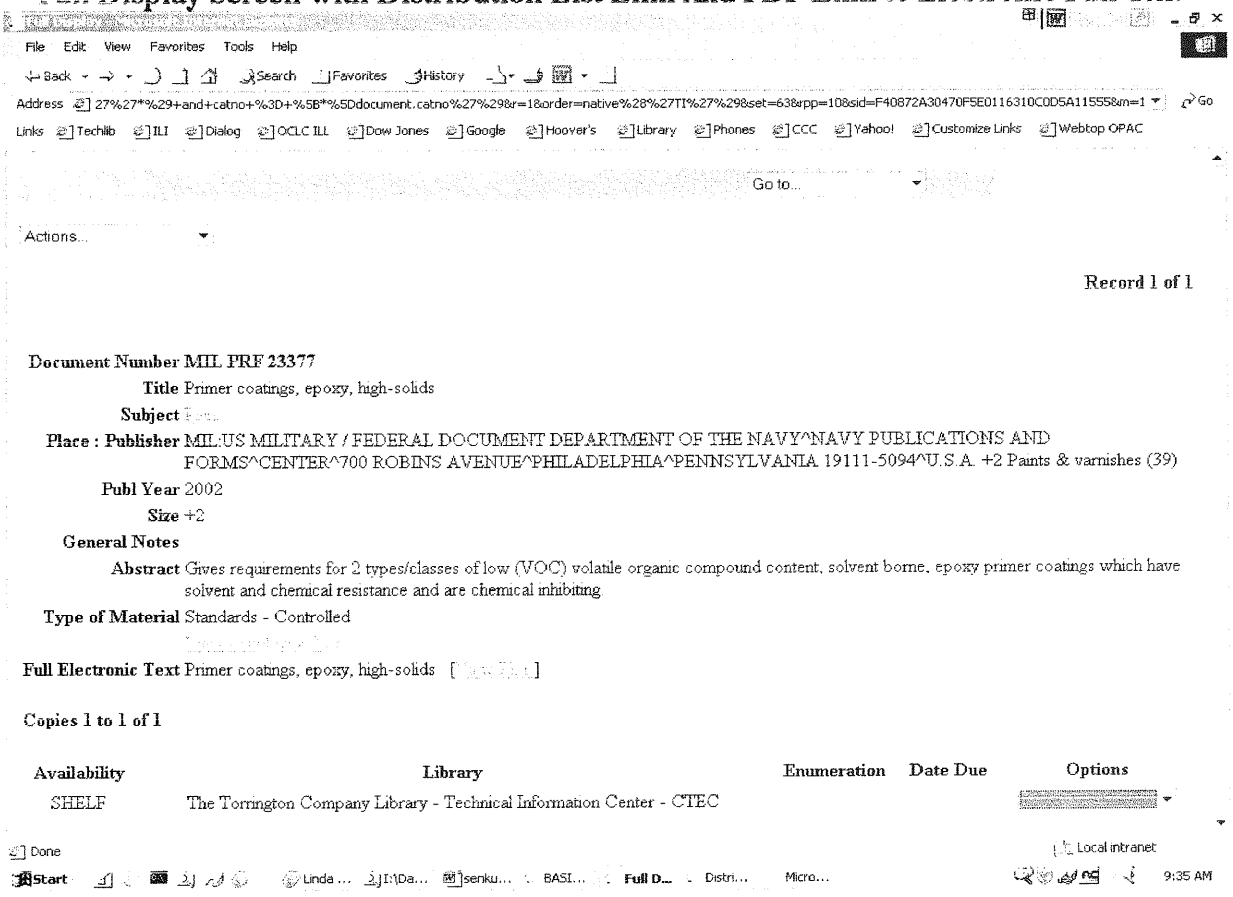
The Library Web Page

A standards sub-page was created for the library web page. This connects employees directly to the library catalog for internally owned standards, to the ILI database to see the range of what is available commercially, or to company written standards. This selection has been a popular feature of the library web page.

Employee Training

With the technical services aspect of the standards program completed, video presentations were given to each of the plants explaining how to locate and request standards. Employees were relieved to know that they no longer had to be concerned with how to purchase standards, stay aware of updates, or who else in the corporation had a copy. They were pleased to use an already existing tool – the library web page and library catalog – rather than learning another tool at a second location. An employee at each company location has been charged with approving requests to add titles or employees to the list of standards to be regularly updated. This verifies that the standard is needed. Individual copies may also be purchased through the library, but they are charged to the employee's budget. While our corporate quality group paid for the initial standards purchase, all updates and additions to the list are being paid out of the library budget.

Full Display Screen with Distribution List Link And PDF Link to Electronic Full Text



Benefits

This process ensures the company that the most recent edition of a particular standard is being used. This is a requirement for many of our contracts. Customer auditors check our procedures, and how we keep our standards current is one of the items they check. Recently, auditors were "thrilled" with our standards policies and procedures. Employees are able to spend more time on task, instead of locating the documents they need. The claims part of the Techlib serials module allows library staff to track titles from order until they are received, and to facilitate claims. Librarians, who are used to determining whether an issue is a new edition or a reprint, who route items as a matter of daily library routine, and who provide current awareness services as a daily library service, simply added additional titles to existing library processes.

We are unable to determine financial advantage under the new system, because standards titles were not charged under a uniform budget code under the old system. We can assume that every document that has been checked out more than once would have been purchased more than once, but this is only the tip of the iceberg when measuring use. It is also difficult to measure employee time saved or time saved answering auditors' questions that is now greatly reduced. However, comments from employees and auditors indicate that this standards system is a great improvement over what was being done in the past.

The Future

The standards procedure will not stop here. Employees have asked to be notified when a standard is updated so that they may go to one of the existing collections and review the new issue. This will be done using the routing function of Techlib, and programming has already been written to distribute our electronic contents pages.

The Torrington Company's library currently uses customized programming that creates an email list by combining fields from a Techlib routing list and

Customized Routing List as Viewed from the OPAC

patron record. An incoming email message with the ISSN in the subject field is joined to this email routing list. The electronic routing list is named by ISSN number. The document is then sent via email to the employees on the routing list. This programming will soon be used to notify employees electronically of standards updates. The standard number is being mapped to the ISSN field in the catalog record as the catalog record is created. A 'Routing Type' field will be used in the routing record that is different than the one that is used for electronic contents pages, or the one used to generate paper routing slips. The program will have to be modified to attach the proper routing letter to the proper routing record, as determined by 'Routing Type'. The format of ILI's electronic notification of update and problems has been discussed. It will be necessary for library staff to create an original document noting an update, then email it to the library address for electronic notifications. A separate email account is used so that automated routing is not happening on an individual's email account, or the "Company Library" email account employees can use to get in touch with library staff without knowing our names. These are minor changes now that the initial program has been written. Electronic contents page routing, electronic standards notification, paper serials routing, and paper standards routing are all done with the same keystroke once each item has been received in the serials module.

Electronic Standards

Standards producers have required purchase of their entire database, or purchase using a pay per view model. When archiving is permitted, it is permitted for 30 days only, and for use by one person. Standards producers often want to license their product so that everyone who connects to the company intranet is considered a standards user. These conditions are unacceptable. To date, no electronic standards have been purchased because of these conditions.

We would like to obtain individual copies of individual standards using a model that is similar to a book pur-

chase. We would purchase the electronic standard, upload it into the Basis/Techlib database behind the catalog record, and allow the full text of the standard to be available from the employee's desktop. Just as a distribution list link is available on the catalog record now, a full text link also appears there. When the standard is no longer current, we are looking for the licensing that allows us to archive that edition. This would be a ground-breaking model. Customers make this option available to us. Standards producers who charge for their documents have not, nor have they been interested in exploring fair pricing for this model. Our ability to make individual electronic standards available to our employees is currently limited by this licensing/purchasing impass.

However, in addition to the licensing problems that this concept creates, we would have to require an employee to go to their desktop every time they want to refer to a particular title to be certain that they have the most recent edition. Will the employee do this? This poses several questions. Will this concept meet with the same good intentions but actual resistance that employees exhibit when updating a routing list themselves, or using ILI's notepad feature? What will auditors require? Only time will tell.

Conclusion

This standards system has solved the problems it was designed to address, while raising other issues. Employees are certain to be using the most current edition of a particular standard. Employees throughout the company can easily see if a particular title is owned within the company, and if so, who has it, and which revision is owned. Archival copies of standards are available. These often can not be purchased. Electronic notification of a standard's update is now possible. Current standards owned within the company, but not automatically updated, are now tracked. Existing library processes and software are used to accomplish all of this.

Licensing and copyright questions are the biggest issues remaining. How and when will a licensing model come to pass that is acceptable both for the standards producer and the standards user? How much longer can companies require their suppliers to work to a particular standard, then charge the supplier for the purchase of the standard?

The issues that remain will best be solved between lawyers, with the librarians and the publishers putting forward what seems reasonable to each of them. We can hope that these issues are resolved soon.